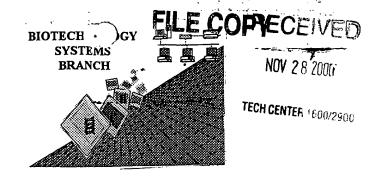


RAW SEQUENCE LISTING ERROR REPORT



The Biotechnology Systems Branch of the Scientific and Technical Information Center (STIC) detected errors when processing the following computer readable form:

Application Serial Number: 09/423,035

Source: /635

Date Processed by STIC: ///6/2000

THE ATTACHED PRINTOUT EXPLAINS DETECTED ERRORS.
PLEASE FORWARD THIS INFORMATION TO THE APPLICANT BY EITHER:

1) INCLUDING A COPY OF THIS PRINTOUT IN YOUR NEXT COMMUNICATION TO THE APPLICANT, WITH A NOTICE TO COMPLY or,

2) TELEPHONING APPLICANT AND FAXING A COPY OF THIS PRINTOUT, WITH A NOTICE TO COMPLY

FOR CRF SUBMISSION QUESTIONS, PLEASE CONTACT MARK SPENCER, 703-308-4212.

FOR SEQUENCE RULES INTERPRETATION, PLEASE CONTACT ROBERT WAX, 703-308-4216. PATENTIN 2.1 e-mail help: patin21help@uspto.gov or phone 703-306-4119 (R. Wax) PATENTIN 3.0 e-mail help: patin30help@uspto.gov or phone 703-306-4119 (R. Wax)

TO REDUCE ERRORED SEQUENCE LISTINGS, PLEASE USE THE <u>CHECKER VERSION 3.0 PROGRAM</u>, ACCESSIBLE THROUGH THE U.S. PATENT AND TRADEMARK OFFICE WEBSITE. SEE BELOW:

Checker Version 3.0

The Checker Version 3.0 application is a state-of the-art Windows based software program employing a logical and intuitive user-interface to check whether a sequence listing is in compliance with format and content rules. Checker Version 3.0 works for sequence listings generated for the original version of 37 CFR §§1.821 – 1.825 effective October 1, 1990 (old rules) and the revised version (new rules) effective July 1, 1998 as well as World Intellectual Property Organization (WIPO) Standard ST.25.

Checker Version 3.0 replaces the previous DOS-based version of Checker, and is Y2K-compliant. Checker allows public users to check sequence listings in Computer Readable form (CRF) before submitting them to the United States Patent and Trademark Office (USPTO). Use of Checker prior to filing the sequence listing is expected to result in fewer errored sequence listings, thus saving time and money.

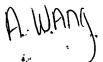
Checker Version 3.0 can be down loaded from the USPTO website at the following address: http://www.uspto.gov/web/offices/pac/checker

ERROR DETECTED SUGGESTED CORRECTION

ATTN: NEW RULES CASES: PLEASE DISREGARD ENGLISH "ALPHA" HEADERS, WHICH WERE INSERTED BY PTO SOFTWARE The number/text at the end of each line "wrapped" down to the next line. Wrapped Nucleics This may occur if your file was retrieved in a word processor after creating it. Please adjust your right margin to .3, as this will prevent "wrapping". The amino acid-number/text at the end of each line "wrapped" down to the next line. Wrapped Aminos This may occur if your file was retrieved in a word processor after creating it. Please adjust your right margin to .3, as this will prevent "wrapping". The rules require that a line not exceed 72 characters in length. This includes spaces Incorrect Line Length The numbering under each 5th amino acid is misaligned. This may be caused by the use of tabs Misaligned Amino Acid between the numbering. It is recommended to delete any tabs and use spacing between the numbers. Numbering This file was not saved in ASCII (DOS) text, as required by the Sequence Rules. Non-ASCII Please ensure your subsequent submission is saved in ASCII text, so that it can be processed. Sequence(s) _____ contain n's or Xaa's which represented more than one residue. Variable Length As per the rules, each n or Xaa can only represent a single residue. Please present the maximum number of each residue having variable length and indicate in the (ix) feature section that some may be missing. A "bug" in Patentln version 2.0 has caused the <220>-<223> section to be missing from amino acid Patentin ver. 2.0 "bug" Normally, Patentin would automatically generate this section from the previously coded nucleic acid sequence. Please manually copy the relevant <220>-<223> section to the subsequent amino acid sequence. This applies primarily to the mandatory <220>-<223> sections for Artificial or Unknown sequences. Sequence(s) missing. If intentional, please use the following format for each skipped sequence: Skipped Sequences (OLD RULES) (2) INFORMATION FOR SEQ ID NO:X: (i) SEQUENCE CHARACTERISTICS:(Do not insert any headings under "SEQUENCE CHARACTERISTICS") (xi) SEQUENCE DESCRIPTION:SEQ ID NO:X: This sequence is intentionally skipped Please also adjust the "(iii) NUMBER OF SEQUENCES:" response to include the skipped sequence(s). Sequence(s) ____ missing. If intentional, please use the following format for each skipped sequence. Skipped Sequences (NEW RULES) <210> sequence id number ₹400> sequence id number 000 Use of n's or Xaa's Use of n's and/or Xaa's have been detected in the Sequence Listing. Use of <220> to <223> is MANDATORY if n's or Xaa's are present. (NEW RULES) In <220> to <223> section, please explain location of n or Xaa, and which residue n or Xaa represents. Use of <213>Organism are missing this mandatory field or its response. (NEW RULES) Sequence(s) _____ are missing the <220>Feature and associated headings. Use of <220>Feature Use of <220> to <223> is MANDATORY if <213>ORGANISM is "Artificial" or "Unknown" (NEW RULES) Please explain source of genetic material in <220> to <223> section. (See "Federal Register," 6/01/98, Vol. 63, No. 104, pp. 29631-32) Please do not use "Copy to Disk" function of PatentIn version 2.0. This causes a corrupted Patentin ver. 2.0 "bug"

Instead, please use "File Manager" or any other means to copy file to floppy disk.

file, resalting in missing mandatory numeric identifiers and responses (as indicated on raw sequence listing).



1635

#8/seg. listing (cerror)

Input Set : A:\Scr21901.app Output Set: N:\CRF3\11162000\1423035.raw 3 <110> APPLICANT: Joyce, Gerald F. Breaker, Ronald R. 6 <120> TITLE OF INVENTION: ENZYMATIC DNA MOLECULES 8 <130> FILE REFERENCE: SCR2190S 10 <140> CURRENT APPLICATION NUMBER: 09/423,035 11 <141> CURRENT FILING DATE: 2000-01-13 13 <150> PRIOR APPLICATION NUMBER: PCT/US98/08677 14 <151> PRIOR FILING DATE: 1998-04-29 **Does Not Comply** 16 <150> PRIOR APPLICATION NUMBER: 60/045,228 Corrected Diskette Needed 17 <151> PRIOR FILING DATE: 1997-04-29 19 <160> NUMBER OF SEQ ID NOS: 131 21 <170> SOFTWARE: PatentIn Ver. 2.1 23 <210> SEQ ID NO: 1 24 <211> LENGTH: 15 25 <212> TYPE: DNA 26 <213> ORGANISM: Artificial Sequence 28 <220> FEATURE: 29 <223> OTHER INFORMATION: Description of Artificial Sequence: 3' terminal 30 sequence 32 <400> SEQUENCE: 1 33 eggtaagett ggeac 15 36 <210> SEQ ID NO: 2 37 <211> LENGTH: 20 38 <212> TYPE: DNA 39 <213> ORGANISM: Artificial Sequence 41 <220> FEATURE: 42 <223> OTHER INFORMATION: Description of Combined DNA/RNA Molecule: The N 43 at position 8 is adenosine ribonucleotide. 45 <220> FEATURE: 46 <223> OTHER INFORMATION: Description of Artificial Sequence: substrate 48 <400> SEQUENCE: 2 W > 49 tcactatnag gaagagatgg 20 52 <210> SEQ ID NO: 3 53 <211> LENGTH: 38

58 <223> OTHER INFORMATION: Description of Artificial Sequence: DNA enzyme

70 <223> OTHER INFORMATION: Description of Artificial Sequence: oligomer

DATE: 11/16/2000

38

TIME: 12:11:55

RAW SEQUENCE LISTING

PATENT APPLICATION: US/09/423,035

54 <212> TYPE: DNA

57 <220> FEATURE:

69 <220> FEATURE:

72 <400> SEQUENCE: 4

60 <400> SEQUENCE: 3

64 <210> SEQ ID NO: 4 65 <211> LENGTH: 80 66 <212> TYPE: DNA

55 <213> ORGANISM: Artificial Sequence

67 <213> ORGANISM: Artificial Sequence

61 acacatetet gaagtagege egeegtatag tgaegeta





RAW SEQUENCE LISTING

PATENT APPLICATION: US/09/423,035

DATE: 11/16/2000 TIME: 12:11:55

Input Set : A:\Scr21901.app

Output Set: N:\CRF3\11162000\I423035.raw

see iten 10 on Ena Jumany

W--> 74 hnnnngtege catetettee 77 <210> SEQ 1D NO: 5 78 <211> LENGTH: 28 79 <212> TYPE: DNA 80 <213> ORGANISM: Artificial Sequence 82 <220> FEATURE: 83 <223> OTHER INFORMATION: Description of Combined DNA/RNA Molecule: The n at position 28 is adenosine ribonucleotide. 84 86 <220> FEATURE: 87 <221> NAME/KEY: misc_feature 88 <222> LOCATION: (28) 89 <223> OTHER INFORMATION: 2'3' cyclic phosphate. 91 <220> FEATURE: 92 <223> OTHER INFORMATION: Description of Artificial Sequence: cleavage produce 95 <400> SEQUENCE: 5 (W) > 96 gggacgaatt ctaatacgac tcactatn 28 99 <210> SEQ ID NO: 6 100 <211> LENGTH: 28 101 <212> TYPE: DNA 102 <213> ORGANISM: Artificial Sequence 104 <220> FEATURE: 105 <223> OTHER INFORMATION: Description of Combined DNA/RNA Molecule: The n at position 28 is adenosine ribonucleotide. 108 <220> FEATURE: 109 <223> OTHER INFORMATION: Description of Artificial Sequence: primer 111 <400> SEQUENCE: 6 112 gggacgaatt ctaatacgac tcactatn. 28 115 <210> SEQ ID NO: 7 116 <211> LENGTH: 19 117 <212> TYPE: DNA 118 <213> ORGANISM: Artificial Sequence 120 <220> FEATURE: 121 <223> OTHER INFORMATION: Description of Combined DNA/RNA Molecule: The n 122 at position 8 is adenosine ribonucleotide. 124 <220> FEATURE: 125 <223> OTHER INFORMATION: Description of Artificial Sequence: substrate 127 <400> SEQUENCE: 7 > 128 tcactatngg aagagatgg 131 <210> SEQ ID NO: 8 132 <211> LENGTH: 8 133 <212> TYPE: DNA 134 <213> ORGANISM: Artificial Sequence 136 <220> FEATURE: 137 <221> NAME/KEY: misc_feature 138 <222> LOCATION: (8) 139 <223> OTHER INFORMATION: The n at position 8 is adenosine nucleotide. 141 <220> FEATURE:





RAW SEQUENCE LISTING DATE: 11/16/2000 PATENT APPLICATION: US/09/423,035 TIME: 12:11:55

Input Set : A:\Scr21901.app

Output Set: N:\CRF3\11162000\1423035.raw

142 <223> OTHER INFORMATION: Description of Artificial Sequence: template 144 <400> SEQUENCE: 8 N-> 145 tcactatn 148 <210> SEQ ID NO: 9 149 <211> LENGTH: 30 150 <212> TYPE: DNA 151 <213> ORGANISM: Artificial Sequence 153 <220> FEATURE: 154 <223> OTHER INFORMATION: Description of Artificial Sequence: template 156 <400> SEQUENCE: 9 157 coatetette etatagtgag teeggetgea 160 <210> SEQ ID NO: 10 161 <211> LENGTH: 15 162 <212> TYPE: DNA 163 <213> ORGANISM: Artificial Sequence 165 <220> FEATURE: 166 <223> OTHER INFORMATION: Description of Artificial Sequence: primer 168 <400> SEQUENCE: 10 169 gtgccaaget taceg 1.5 172 <210> SEQ ID NO: 11 173 <211> LENGTH: 43 174 <212> TYPE: DNA 175 <213> ORGANISM: Artificial Sequence 177 <220> FEATURE: 178 <223> OTHER INFORMATION: Description of Artificial Sequence: primer 180 <400> SEQUENCE: 11 181 ctgcagaatt ctaatacgac tcactatagg aagagatggc gac 43 184 <21.0> SEQ ID NO: 12 185 <211> LENGTH: 19 186 <212> TYPE: DNA 187 <213> ORGANISM: Artificial Sequence 1.89 <220> FEATURE: 190 <223> OTHER INFORMATION: Description of Combined DNA/RNA Molecule: The n 191 at position 8 is adenosine ribonucleotide. 193 <220> FEATURE: 194 <223> OTHER INFORMATION: Description of Artificial Sequence: substrate 196 <400> SEQUENCE: 12 197 tcactatngg aagagatgg 200 <210> SEQ ID NO: 13 19 201 <211> LENGTH: 43 202 <212> TYPE: DNA 203 <213> ORGANISM: Artificial Sequence 205 <220> FEATURE: 206 <223> OTHER INFORMATION: Description of Combined DNA/RNA Molecule: The n at position 28 is adenosine ribonucleotide. 209 <220> FEATURE: 210 <223> OTHER INFORMATION: Description of Artificial Sequence: fixed 211 substrate 213 <400> SEQUENCE: 13

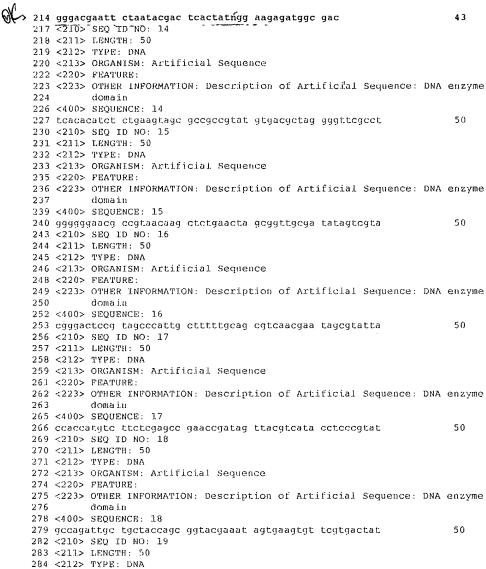




RAW SEQUENCE LISTING DATE: 11/16/2000 PATENT APPLICATION: US/09/423,035 TIME: 12:11:55

Input Set : A:\Scr21901.app

Output Set: N:\CRF3\11162000\1423035.raw







RAW SEQUENCE LISTING DATE: 11/16/2000 PATENT APPLICATION: US/09/423,035 TIME: 12:11:55

Input Set : A:\Scr21901.app

Output Set: N:\CRF3\11162000\1423035.raw

```
285 <213> ORGANISM: Artificial Sequence
     287 <220> FEATURE:
     288 <223> OTHER INFORMATION: Description of Artificial Sequence: DNA enzyme
               domain
     291 <400> SEQUENCE: 19
     292 ataggecatg ctttggctag eggcacegta tagtgtacet gecettateg
                                                                            50
     295 <210> SEQ ID NO: 20
     296 <211> LENGTH: 50
     297 <212> TYPE: DNA
     298 <213> ORGANISM: Artificial Sequence
     300 <220> FEATURE:
     301 <223> OTHER INFORMATION: Description of Artificial Sequence: DNA enzyme
     302
               domain
     304 <400> SEQUENCE: 20
     305 totgetetee tetattotag eagtgeageg aaatatgteg aatagteggt
                                                                            50
     308 <210> SEQ ID NO: 21
     309 <211> LENGTH: 50
     310 <212> TYPE: DNA
     311 <213> ORGANISM: Artificial Sequence
     313 <220> FEATURE:
    314 <223> OTHER INFORMATION: Description of Artificial Sequence: DNA enzyme
    315
               domain
    31.7 <400> SEQUENCE: 21
     318 ttgcccagca tagtcggcag acgtggtgtt agcgacacga taggcccggt
     321 <210> SEQ ID NO: 22
    322 <21.1> LENGTH: 50
     323 <212> TYPE: DNA
     324 <213> ORGANISM: Artificial Sequence
     326 <220> FEATURE:
    327 <223> OTHER INFORMATION: Description of Artificial Sequence: DNA enzyme
    328
               doma i.n.
    330 <400> SEQUENCE: 22
     331 ttgctagctc ggctgaactt ctgtagcgca accgaaatag tgaggcttga
    334 <210> SEQ ID NO: 23
    335 <21.1> LENGTH: 107
    336 <212> TYPE: DNA
    337 <213> ORGANISM: Artificial Sequence
    339 <220> FEATURE:
    340 <223> OTHER INFORMATION: Description of Combined DNA/RNA Molecule: The n
    341
               at position 28 is adenosine ribonucleotide.
    343 <220> FEATURE:
    344 <223> OTHER INFORMATION: Description of Artificial Sequence: oligomer
    346 <400> SEQUENCE: 23
W--> 347 gggacgaatt ctaatacgac teactatngg aagagatgge gacatetchn nnnnnnnnn 60
W--> 348 (nnnnnnnnn nnnnnnnnn nnnnnnnngt gacggtaagc ttggcac
```

Seguera Kiles, all N'C must be explaine

PYI:

351 <210> SEQ 1D NO: 352 <211> LENGTH: 49 353 <212> TYPE: DNA

354 <213> ORGANISM: Artificial Sequence

Please Note:

Use of n and/or Xaa have been detected in the Sequence Listing. Please review the Sequence Listing to ensure that a corresponding explanation is presented in the <220> to <223> fields of each sequence which presents at least one n or Xaa.

L2207-L2237





VERIFICATION SUMMARY DATE: 11/16/2000 TIME: 12:11:56

PATENT APPLICATION: US/09/423,035

Input Set : A:\Scr21901.app

Output Set: N:\CRF3\11162000\1423035.raw

L:49 M:258 W: Mandatory Feature missing, <221> not found for SEQ 1D#:2 L:49 M:258 W: Mandatory Feature missing, <222> not found for SEQ 1D#:2 L:49 M:340 W: (46) "n" or "Xaa" used: Feature required, for SEQ ID#:2 L:73 M:258 W: Mandatory Feature missing, <221> not found for SEQ 1D#:4 L:73 M:258 W: Mandatory Feature missing, <222> not found for SEQ 1D#:4 L:73 M:340 W: (46) "n" or "Xaa" used: Feature required, for SEQ ID#:4 $L:74~\mathrm{M}:258~\mathrm{W}:$ Mandatory Feature missing, <221> not found for SEQ 1D#:4 L:74 M:258 W: Mandatory Feature missing, <222> not found for SEQ ID#:4 M:340 Repeated in SegNo=4 L:96 M: $3\overline{4}1$ W: (46) "n" or "Xaa" used, for SEQ ID#:5 $L:112\ M:258\ W:$ Mandatory Feature missing, <221> not found for SEQ ID#:6 L:112 M:258 W: Mandatory Feature missing, <222> not found for SEQ 1D#:6 L:112 M:340 W: (46) "u" or "Xaa" used: Feature required, for SEQ ID#:6 L:128 M:258 W: Mandatory Feature missing, <221> not found for SEQ ID#:7 L:128 M:258 W: Mandatory Feature missing, <222> not found for SEQ ID#:7 L:128 M:340 W: (46) "n" or "Xaa" used: Feature required, for SEQ ID#:7 L:145 M:341 W: (46) "n" or "Xaa" used, for SEQ ID#:8 L:197 M:258 W: Mandatory Feature missing, <221> not found for SEQ ID#:12 L:197 M:258 W: Mandatory Feature missing, <222> not found for SEQ ID#:12 L:197 M:340 W: (46) "n" or "Xaa" used: Feature required, for SEQ ID#:12 L:214 M:258 W: Mandatory Feature missing, <221> not found for SEQ ID#:13 L:214 M:258 W: Mandatory Feature missing, <222> not found for SEQ ID#:13 L:214 M:340 W: (46) "n" or "Xaa" used: Feature required, for SEQ ID#:13 L:347 M:258 W: Mandatory Feature missing, <221> not found for SEQ ID#:23 L:347 M:258 W: Mandatory Feature missing, <222> not found for SEQ 1D#:23 L:347 M:340 W: (46) "n" or "Xaa" used: Feature required, for SEQ ID#:23 ${
m L}_{1/2}48$ M:258 W: Mandatory Feature missing, <221> not found for SEQ ID#:23 L:348 M:258 W: Mandatory Feature missing, <222> not found for SEQ ID#:23 M:340 Repeated in SeqNo=23 L:683 M:258 W: Mandatory Feature missing, <221> not found for SEQ ID#:50 L:683 M:258 W: Mandatory Feature missing, <222> not found for SEQ ID#:50 L:683 M:340 W: (46) "n" or "Xaa" used: Feature required, for SEQ ID#:50 L:684 M:258 W: Mandatory Feature missing, <221> not found for SEQ ID#:50 L:684 M:258 W: Mandatory Feature missing, <222> not found for SEQ ID#:50 M:340 Repeated in SegNo=50 L:701 M:258 W: Mandatory Feature missing, <221> not found for SEQ ID#:51 L:701 M:258 W: Mandatory Feature missing, <222> not found for SEQ ID#:51 L:701 M:340 W: (46) "n" or "Xaa" used: Feature required, for SEQ ID#:51 L:702 M:258 W: Mandatory Feature missing, <221> not found for SEQ LD#:51 L:702 M:258 W: Mandatory Feature missing, <222> not found for SEQ ID#:51 M:340 Repeated in SeqNo=51 L:1546 M:341 W: (46) "n" or "Xaa" used, for SEQ ID#:123